4-2013

2013 Pesticide Safety - Mix This, Not That

Hilary A. Sandler
University of Massachusetts - Amherst, hsandler@umass.edu

Mix This, not that

Hilary Sandler
UMass Cranberry Station

Tank – mixing Pesticides

- Saves time and labor
- But will it be a gloppy mess??
- Best approach: DO A JAR TEST!!

Jar Test Basics

- Need CLEAR, CLEAN 1- quart glass jar with good – fitting lid.
  - Avoid cardboard, metal lids, if possible
- Always wear PPE!
- Do the test in a safe work space.

Jar Test Basics

- Add 1 pint (16 oz) of spray water
  - Use the source you will spray with.
- Check the spray water pH.
- Add materials starting with those most difficult to disperse & shake vigorously. Observe!

Jar Test Mixing

- After adding each ingredient, shake and observe.
- Use chart on fact sheet to figure how much to add.
  - If label calls for 2 lb / A WP and you are spraying 100 gal H2O / A, add 2 Tbl to the jar.

Mixing Order

- Water soluble pouches
- Wettable powders
- Dry flowables / Water-dispersible granules
- Suspension concentrates / Flowables / Capsule suspensions
- Emulsifiable concentrates
- Soluble liquids
- Soluble powders
- Surfactants
- Fertilizers

Rates to Use

- WSP, WP, DF, WDG : 1 Tbsp / lb
- SC, F, CS, EC, L : 1 tsp / pint
- SP : 1 tsp / lb
- Surfactants, oils, adjuvants: 1 tsp / pint
- Fertilizers: 1.1 g / lb

Rates to Use

- If label says less than 1 lb/A, still add 1 TBsp.
- If using < 100 gpa spray volume, still add same amt pesticide to jar.
  - If compatible under concentrated conditions, should be fine in more dilute, field conditions.

Rates and Disposal

- Similar logic holds for chemigation:
  - Test at more concentrated level (follow fact sheet recommendations)
  - If works at “100 gal / A”, should be fine at 400 – 600 gal / A
- Triple – rinse container and properly dispose of jar test contents.

Jar Test Observations

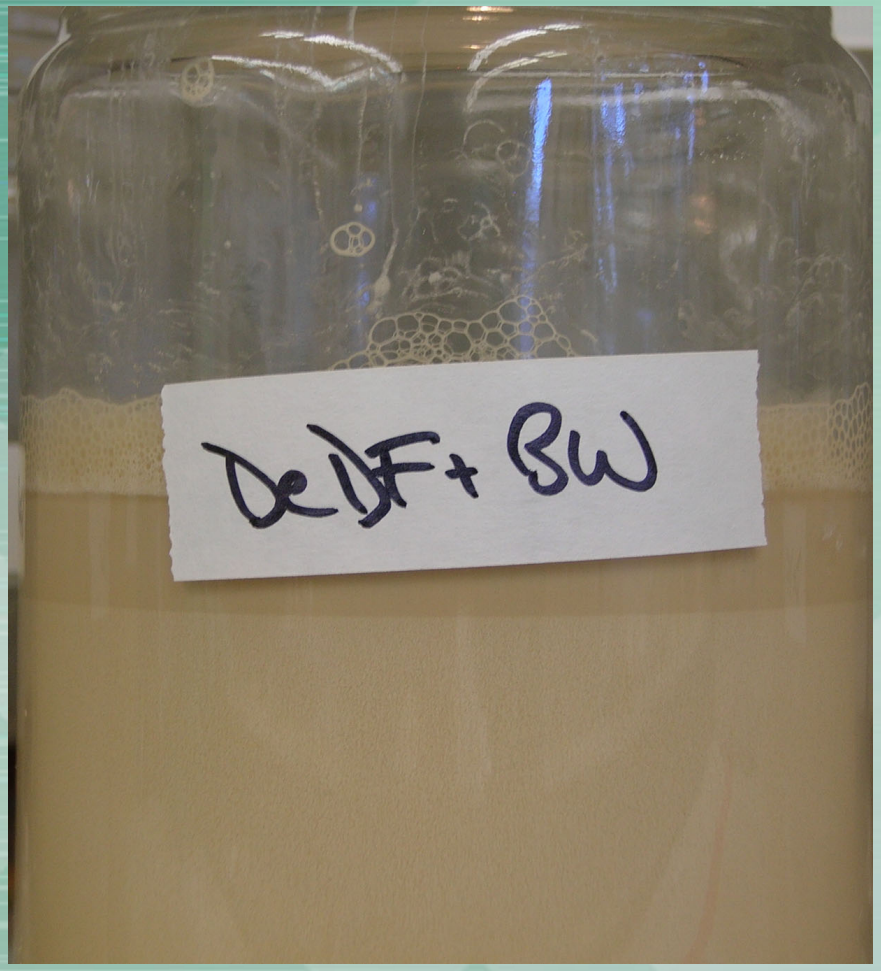
- Stir mixture. Feel sides of jar.
  - Warmth or Cold indicates chemical reaction has occurred; may Reduce Efficacy or Increase Phytotoxicity!
  - No clumping should be seen.
  - Mixture should look smooth.

Combos with NO reaction

2 Combos with BAD reaction

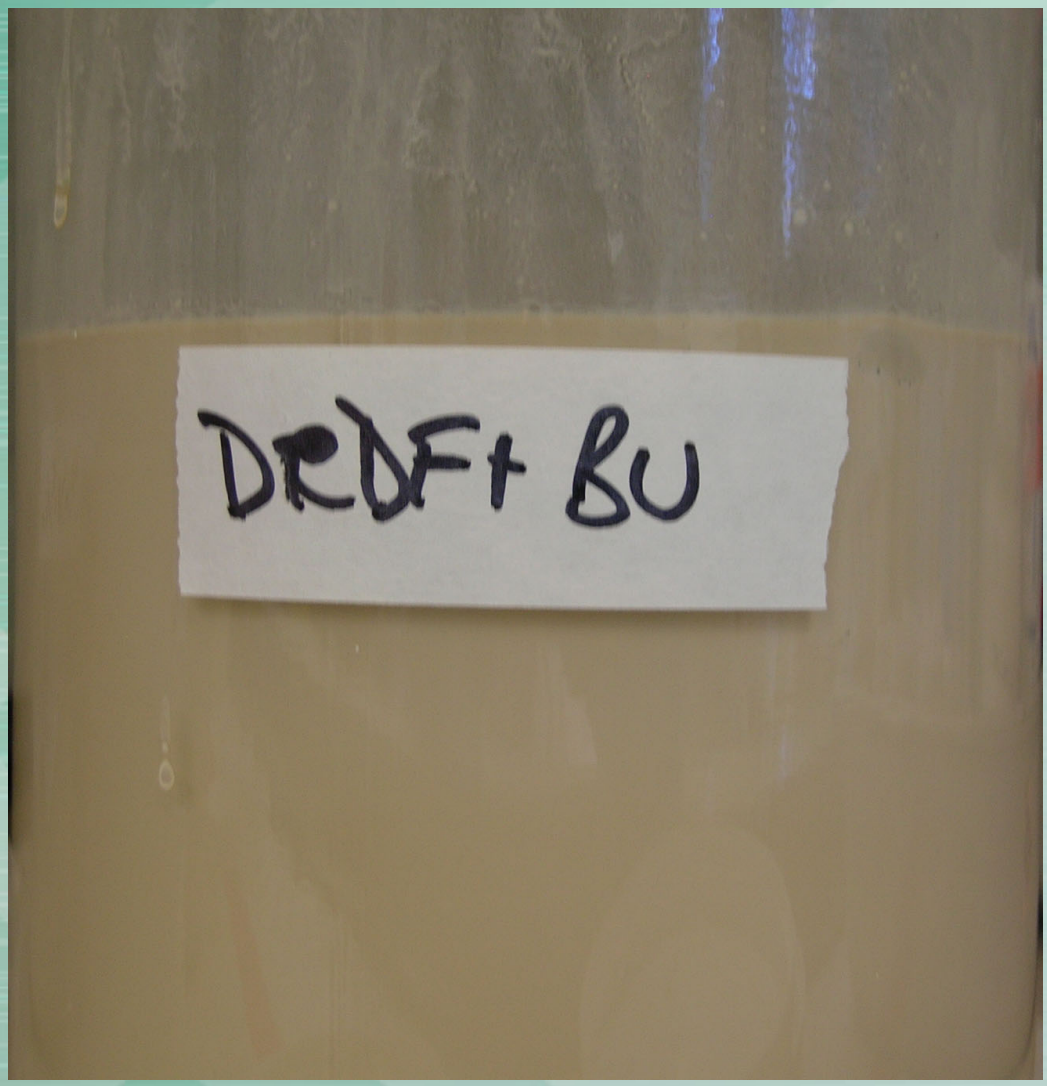
Delegate and Callisto

Combos with BAD reaction



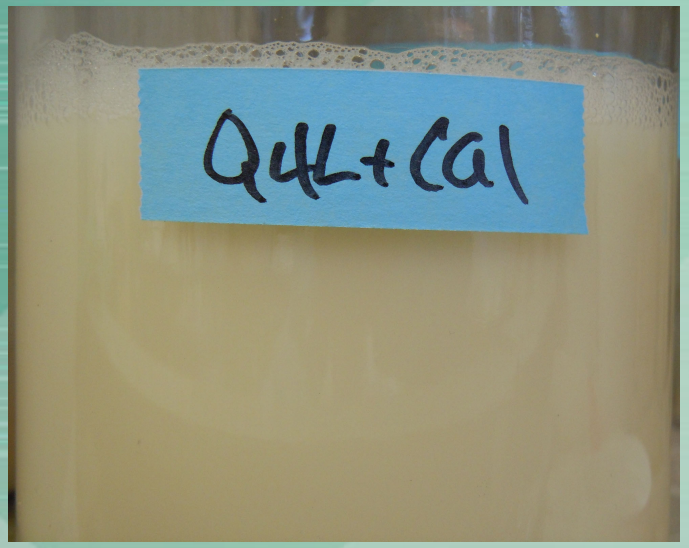
After 45 minutes

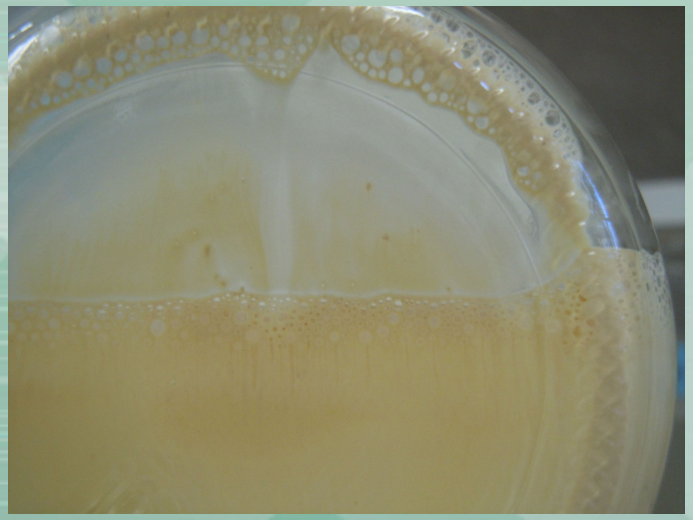
Devrinol + Ultrex



Solution looked fine but when emptied, it was clumpy

Combos with Minor reaction





Combo with Discoloration

QuinStar with Exit

Jar Test Results

- Avoid Delegate + Callisto or QuinStar
- Use NIS other than Exit + QuinStar
- Use constant agitation with:
  - Avaunt + Ultrex, WStik, Delegate, Devrinol
  - Delegate + Ultrex, WStik, Avaunt
  - QuinStar + Callisto

The last slide ….

- Different experiences ??
- Questions on jar test ??
- Jars: Amazon.com
  Greenwood Products, 32 oz,
  PTFE - lined lid, ~ $2.50 ea, cs of 12